

REMARKS/ARGUMENTS

The Office Action mailed March 18, 2004 has been reviewed and carefully considered. Before the present Amendment, Claims 14-17, 19, and 21-26 were pending, with Claim 14 being the sole independent claim. In the present amendment, none of the previously pending claims are amended, Claim 16 is cancelled without prejudice, and Claims 27-36 are added, Claim 27 being in independent form. The priority claim in the specification is amended to more accurately recite the relationship between this and the previous applications. After the present Amendment is entered, Claims 14-15, 17, 19, and 21-36 will be pending, with Claims 14 and 27 being in independent form.

In the March 18, 2004 Office Action, Claim 16 was objected to under 37 CFR §1.75(c) as having improper antecedent form. In the present Amendment, Claim 16 is cancelled without prejudice, thereby rendering the objection moot.

In the March 18, 2004 Office Action, Claims 14-17, 19, and 21-26 were rejected under 35 USC §103(a) over *Fay et al.* (US 4,087,568) in view of WO 98/41805 (hereinafter, the '805 publication). Applicants respectfully traverse the rejection.

According to the invention claimed in independent Claim 14 of the present application, an evaporation rate mathematical submodel is compiled for each drying unit in an equipment layout used in making a coated web of paper or board. The submodel of a drying unit can be used to compute the amount of liquid removed by that drying unit. The submodels are linked together to form a chain which comprises a composite evaporation rate model. The composite evaporation rate model is used to determine the needed moisture evaporation effect for each drying unit so that an overall evaporation effect (of all the drying units) can be achieved. Because the submodels representing each drying unit are linked together in a chain comprising the composite evaporation rate model, the overall evaporation effect can be controlled "without measuring an actual amount of liquid removed by any individual drying unit of the equipment layout while such drying unit is drying the web" (Claim 14, last three lines).

Thus, it is not necessary to measure the moisture content after each individual drying unit.¹

Fay et al. describes an equipment layout comprised of a coater 3, a dryer 5, cooling rolls 6, and multiple gauges 2, 4, and 7 for weighing the web moving past; specifically, gauge 2 weighs the web before coater 3, gauge 4 weighs the web after coater 3, and gauge 7 weighs the web after cooling rolls 7 (see FIG. 1 and accompanying description, e.g., col. 3, lines 25-41, *Fay et al.*). Device 8 measures the web temperature after gauge 7, and a moisture gauge 11a senses the percentage of moisture content in the web before coater 3 (see, e.g., col. 3, lines 36-40 and 57-66). The measurements from all of these gauges and sensors are input into a "dryer control formula" which outputs %VA, the percentage of residual volatiles in the dried treated output web (i.e., the web after gauge 7 and device 8). Various settings, such as dryer supply fan RPMs, damper settings, etc., are changed in order to maintain a desired drying rate, as measured by %VA (col. 1, lines 41-53).

%VA is a measurement, like one's height or weight, which is determined from a plurality of measurements from the various gauges and sensors placed at various spots on the web's path through the **single** dryer 5 of *Fay et al.* However, *Fay et al.* neither teaches or suggests having multiple dryers or multiple coating/drying stages in an equipment layout, as is possible in presently pending Claim 14, nor the linking together of mathematical submodels, nor the use of a composite mathematical model, nor a method which allows one **not** to measure moisture at the output of each drying unit (see footnote 1), etc., as are recited in presently pending Claim 14.

The Examiner suggests that the '805 publication teaches that (1) "more than one dryer can be provided after the coater", (2) "the moisture of the web can be checked after coating and before drying (monitor 21) and also checked at the outlet of the drying

¹ This point is stressed because it appears that the Examiner believes that the teaching of a "residual moisture monitor ... provided at the outlet of all the drying stations" (Office Action, page 8) provides support for the §103 rejection. In fact, such a disclosure (which, as explained below, does not exist in this case) would **teach away** from the claimed invention. Claim 14 explicitly recites that because of the inventive method which uses the composite model to calculate evaporation rates, it is **not** necessary to measure moisture at the output of all the drying stations ("...**without** measuring an actual amount of liquid removed by any individual drying unit...", emphasis added).

units (monitor 23)", and (3) "[o]ne or more dryers can be adjusted to provide a web with the desired residual moisture" (Office Action, page 6).

The '805 publication is a German language document with an English abstract. The abstract describes a system in which a web is impregnated with fluid, the excess of which is squeezed off by means of metering rolls, and then dried. The mode or method of drying is not specified, nor is there any reference to a "dryer," nor is there any reference to using more than one dryer, nor to stations or stages of dryers. There is one reference to "the last drying phase" but it is not clear whether "phase" is meant spatially or temporally. In the '803 abstract, moisture is checked at set intervals by cutting out pieces of the web itself. There is no indication how these "intervals" are "set" (neither where in space nor when in time). Moreover, as stated above, the moisture is not measured from a moving web, but from a cut out section of the web (which may or may not be moving when the section is cut off). There is no indication whether this moisture measurement is performed using "monitors" or not, and the word "monitor" is never used in the abstract. Moreover, there are no reference numerals in the abstract. Thus, there is no reference to any of a "monitor", the numeral "21", or the numeral "23" in the abstract. Obviously, there is neither a "monitor 21" nor a "monitor 23" in the abstract, nor is there any suggestion of one (at least not one anything like the monitors used in either the present application or *Fay et al.*).

The method described in the '803 abstract uses "an automatic regulating device" where the weight of the wet web is measured and adjusted; and the moisture of the dried web is measured by cutting out sections of web and adjusted, "for example, by influencing the speed of the drying air which is circulated during the last drying phase". The "quantity of resin applied is calculated from" the measured moisture, and the measured weights of the untreated web, the wet web, and the dry web. It is not clear whether the "resin" is the same as, or different from, the "impregnating agent" being applied to the web. The '803 abstract neither suggests nor teaches multiple dryers or the adjustment of individual dryers within a plurality of dryers. The '803 abstract neither teaches nor suggests the use of a composite model comprised of submodels to control

the drying of a coated web or a method where measurements after each drying unit are not necessary.

MPEP §706.02 II, entitled "RELIANCE UPON ABSTRACTS AND FOREIGN LANGUAGE DOCUMENTS IN SUPPORT OF A REJECTION", is reproduced below in full (emphasis added), as it has specific applicability to the use of the abstract in the '805 publication in this rejection:

... When an abstract is used to support a rejection, the evidence relied upon is the facts contained in the abstract, not additional facts that may be contained in the underlying full text document. Citation of and reliance upon an abstract without citation of and reliance upon the underlying scientific document is generally inappropriate where both the abstract and the underlying document are prior art. See *Ex parte Jones*, 62 USPQ2d 1206, 1208 (Bd. Pat. App. & Inter. 2001) (unpublished).

To determine whether both the abstract and the underlying document are prior art, a copy of the underlying document must be obtained and analyzed. If the document is in a language other than English and the examiner seeks to rely on that document, a translation must be obtained so that the record is clear as to the precise facts the examiner is relying upon in support of the rejection. The record must also be clear as to whether the examiner is relying upon the abstract or the full text document to support a rejection. The rationale for this is several-fold. It is not uncommon for a full text document to reveal that the document fully anticipates an invention that the abstract renders obvious at best. **The converse may also be true, that the full text document will include teachings away from the invention that will preclude an obviousness rejection under 35 U.S.C. 103, when the abstract alone appears to support the rejection.** An abstract can have a different effective publication date than the full text document. Because all patentability determinations are fact dependent, obtaining and considering full text documents at the earliest practicable time in the examination process will yield the fullest available set of facts upon which to determine patentability, thereby improving quality and reducing pendency.

When both the abstract and the underlying document qualify as prior art, the underlying document should normally be used to support a rejection. **In limited circumstances, it may be appropriate for the examiner to make a rejection in a non-final Office action based in whole or in part on the abstract only without relying on the full text document. In such circumstances, the full text document and a translation (if not in English) may be supplied in the next Office action. Whether the next Office action may be made final is governed by MPEP § 706.07(a).²**

In the '805 publication, a drawing with reference numerals appears on the front cover, yet there are no reference numerals in the abstract, i.e., there is no guide as to which

² § 706.07(a) states that a "second or subsequent action on the merits in any application ... will not be made final if it includes a rejection, on newly cited art, ..., of any claim not amended ... in spite of the fact that other claims may have been amended to require newly cited art". In the present case, an English translation of the German specification would be "newly cited art" and Claim 14 has not been amended at all. Whether the newly added claims require newly cited art or not is irrelevant ("...in spite of the fact..."), thus one would expect the next Office Action to not be final.

component in the abstract corresponds to which component in the drawing. Moreover, the word "monitor" is not used in the abstract. Therefore, the Examiner's references to "monitor 21" and "monitor 23" are only guesses, and perhaps incorrect guesses (even if 21 and 23 are monitors, they are not necessarily measuring moisture³). "Monitor 21" and "monitor 23" may or may not be correct guesses, but they are clearly "additional facts that may be contained in the underlying full text document" as they are **not** facts put forth in the abstract. As such, these guesses can not be used to support a §103 obviousness rejection.

Furthermore, if the components the Examiner has named by guesswork are not what the Examiner has guessed they are (which is likely), the "full text document" may "include teachings away from the invention that will preclude an obviousness rejection under 35 U.S.C. 103." Surely, if it is possible that the Examiner has guessed incorrectly, and that the German language specification teaches away from the claimed invention, it can not be appropriate support for a rejection. Even if the Examiner has guessed correctly, it is still possible that the German language specification teaches away from the claimed invention, a possibility which again indicates the inadequacy of the rejection.

More important than the formal inadequacy of the use of the '803 Abstract in the rejection is the substantive inadequacy of the use of the '803 Abstract in the rejection. The '803 abstract neither teaches nor suggests multiple drying units and/or their individual control of drying units using linked submodels which comprise a composite mathematical model and/or a method where measurements after each drying unit are not necessary

Therefore, applicants submit that, at the least, a translation of the German language reference should be provided with the next Office Action (which should not be a Final Rejection⁴), and the disclosure of the '803 publication be adequately described and cited. Since applicants have yet to analyze the disclosure of the '803 publication, a

³ In fact, based on the wording of the '803 abstract, it appears more likely that the components the Examiner indicates, if they are "monitors" at all, measure the weight of the web, not the moisture, since the moisture is measured from cut out sections of web.'

⁴ See footnote 2 above.

full analysis can not be performed at this point. Nevertheless, the applicants guess that the '803 publication as a whole neither teaches nor suggests a plurality of drying units nor control of moisture using a composite mathematical model comprised of submodels representing each drying unit.

In summary, applicants submit that the combination of *Fay et al.* and the '803 abstract neither teaches nor suggests the invention claimed in independent Claim 14 of the present invention. For example, the combination of *Fay et al.* and the '803 abstract neither teaches nor suggests a plurality of drying units being controlled using a composite mathematical model comprised of submodels representing each drying unit linked together in a chain representing the equipment layout, where it is not necessary to measure the moisture content between individual intermediate drying units because the submodels can be used to calculate the moisture content of the output web.

For at least the above reasons, independent Claim 14 is patentable over the cited prior art. Moreover, at least through their dependence on Claim 14, Claims 15, 17, 19, and 21 are also patentable over the cited prior art. Withdrawal of their rejection is respectfully requested.

Claims 27-36 are added in the present Amendment and contain no new matter: Claim 27 has support in the entire specification, including the originally filed claims and drawings, see, e.g., claim 1, page 11, lines 10-16 and 28-31, page 12, lines 3-7 and 29-32; Claim 28 has support in the entire specification, including the originally filed claims and drawings, see, e.g., page 10, lines 21-22; Claims 29-30 have support in the entire specification, including the originally filed claims and drawings, see, e.g., page 8, line 31, to page 9, line 9; Claims 31-32 have support in the entire specification, including the originally filed claims and drawings, see, e.g., page 13, lines 15-26; Claim 33 has support in the entire specification, including the originally filed claims and drawings, see, e.g., page 9, lines 15-20; Claims 34-35 have support in the entire specification, including the originally filed claims and drawings, see, e.g., page 5, lines 14-18, and page 9, line 29, to page 10, line 1; and Claim 36 has support in the entire specification, including the originally filed claims and drawings, see, e.g., page 14, lines 11-14.

Newly added independent Claim 27 is patentable over the cited prior art at least because it recites any of (1) a composite drying effect model comprised of drying effect submodels linked together, where the composite model is used to control the drying of the coated web, (2) a drying effect submodel of an "open draw" being used to calculate the drying effect of an entire web apparatus (an open draw being the empty space following a dryer), and/or (3) a composite drying effect model comprised of drying effect submodels linked together, where the output of at least one submodel is used as the input for the following submodel in the chain of submodels comprising the composite submodel.

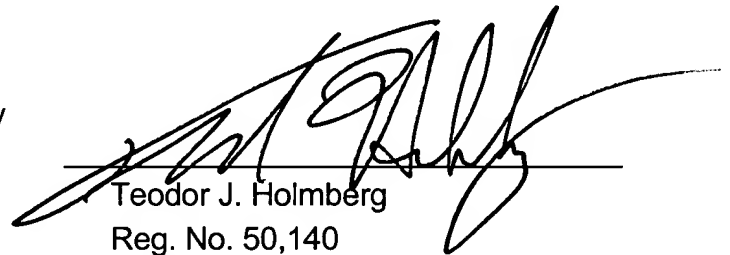
At least because newly added Claims 28-36 depend from Claim 27, which is believed to be patentable, Claims 28-36 are also believed to be in patentable condition.

Based at least on the remarks and arguments above, allowance of all pending claims is respectfully requested.

Respectfully submitted,

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By

A handwritten signature in black ink, appearing to read 'Teodor J. Holmberg', is written over a horizontal line.

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